

Operating instructions

TWIN SAT-Streamer

DVB-S/-S2 → 2 x CI → IP & ASI



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SSI 108

Part N°: 9740.01

...Setting Signals

1. Safety and operating instructions



When assembling, starting-up and adjusting the modules, it is necessary to consider the system specific references in the manual instruction!



The modules may only be installed and started up by authorized technical personnel!



When assembling the modules into the receiving points, the adherence of the EMC regulations is to be secured!



The assembly and wiring have to be done without voltage!



All active modules may only be operated with the Headend Controller HCB x00 or Bus Extender BEB x00!



The main voltage and the operating voltage of the modules working by DC have to be in compliance to the operating parameters described in the technical data.



With all work the defaults of the DIN EN 50083 have to be considered! Especially the safetyrelevant execution of the DIN EN 60728-11 [6] is necessary!

2. Device variants

SSI 108 9740.01 DVB-S/-S2 → 2 x CI → IP & ASI

Minimum software requirements for HCB x00:

9650.03: version 2.34*

9650.04/05: version 3.25*

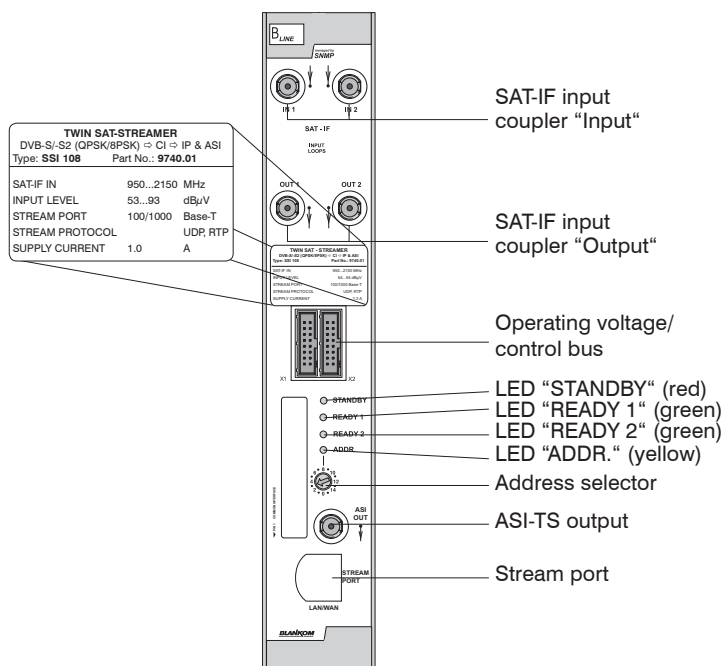
9652.01: version 3.25*

*) Updates: www.blankom.de

3. General

The TWIN SAT Streamer SSI 108 is a module of the head end system B-LINE, which is conceived as a complete system for middle sized networks. The SSI 108 demodulates DVB-S/-S2 signals (8PSK,QPSK) into 2 transport streams, which are send out over IP. A Common Interface slot enables the use of CA-Modules for the reception of scrambled SAT signals/programmes. Additionally the processed transport streams with the descrambled services are available on the ASI output, and the max. 16 IP transport streams too. All the components are programmed via a central control unit and will function independently thereafter. The status of the modules are displayed via LED's (see chapter 7 „Meaning of the status LED`s on front panel “).

4. Front view



managed by
SNMP

5. Functional description

The SAT-IF input signal is fed to the DVB-S/-S2 front end, where the selection of a transponder and its QPSK or 8PSK demodulation are done. The data stream is routed by a switching matrix either to the Common Interface or directly to the IP module. A respective CA module with smart card, which is supported by the device, has to be used for descrambling.* Multi service decryption is possible if there are not any restrictions by the CAM itself or by the service provider. The decryption of MPEG-4 services is supported. With this module its possible to choose elementary streams of a service for decryption. So the ressources of the respective CAM/ smart card combination can be used optimally. The SI and PSI tables affected (i.e. the PAT, PMT, SDT, EIT) are automatically corrected. 16 of all programs contained in both transport streams can be selected and transmitted via IP. This is supported by different protocols. Address and port selection are not restricted, but should be orientated itselfs according recommendations of IANA. The module allows the output of one single program transport stream (SPTS) per IP connection, but also the output of one of both multi program transopt streams (MPTS), that can be decrypted. For monitoring there is an ASI output to check one of the 16 stream channels. A permanent 12 V voltage for LNC supply is available at the SAT inputs.

* The design of the Common interface of this module is done according to DVB standards. Because of the dependencies in interaction of the DVB signals, CA modules and smart cards we can not assure a general functional capability for all application possibilities. Please contact our service department for further assistance!

6. Adjustments

6.1 Adjustment with the Headend Controller

- Adjustment of the addresses at the Bus Extender BEB x00 and at the modules
- Activation of the programming mode on each module by selecting the line (BEB x00) and the module position (01... 15) at the Headend Controller(HCB x00)
→ yellow LED illuminates until the beginning of the parameter adjustment
- Adjustment of the SSI 108 parameters (see chapter 10) → green LED is switched on
- After the programming the SSI 108 will be automatically switched into the operating mode
→ yellow LED flashes shortly/ green LED is switched on

6.2 Adjustment with the PC/ laptop

- Prerequisite for the remote programming is an "online-connection" according the IP-standard and an ethernet connection at the PC/ laptop
- Adjustment of the line/ position addresses at the Bus Extender BEB x00 as well as at the modules
- At the Headend Controller HCB x00 input IP address (e.g. 192.168.001.001)
- For "direct connection" between a PC and HCB x00 use crossover cable (RJ 45)
- For connection over a HUB use a normal straight through patch cable
- Start-up HTML-browser and put in IP address as target address
- If connected correctly the web interface will be opened on the pc and a blue LED (LINK) at the HCB x00 will be lit up.
- All adjustments of the modules are specified on the web interface.

The manual instructions of the Headend Controller HCB x00 and the Bus Extender BEB x00 have to be considered!

7. Meaning of the LED`s

7.1 LED's at the stream port

Meaning (Colour)	Status	Meaning of display
GbE connect LED (green)	permanently on	cable connection with GbE
	off	no cable connection with GbE
Data LED (yellow)	permanently on	port active
	flashing	data being exchanged

7.2 Status LED's on front panel

Designation (Colour)	Status	Meaning of display
STANDBY (red)	permanently on	Module is in standby
	flashing	Module faulty (hardware error)
READY 1/ 2 (green)	permanently on	Module working properly
	flashing	Error warnings, depending on signal: - tuner 1/ 2 not synchronized (e.g. there is no input signal) - Error of decryption - stream channel to the receiver is broken
ADDR. (yellow)	illuminated/ flashing	remote control connection/ data being exchanged

8. Programming by web server*

8.1 Main menu

TWIN SAT-Streamer, SSI 108 (9740.01 / 00), Address 00 / 00				
Description	xxxx			
Input channel	1		2	
SAT-IF	1315	1704	MHz	
Symbol rate	27500	27500	kSps	
Standard	Auto		Auto	
Status	SYNC (DVB-S2)		SYNC (DVB-S)	
Common Interface	Slot 1		Slot 2	
TS-Source	Input channel 1		Input channel 2	
CA-Module	Cryptoworks		AlphaCrypt	
CA-Menu	Load		Load	
Multidecryption	Menu		Menu	
IP-Network	IP-Address	Subnet mask	Gateway	MAC-Address
Ethernet	192.168.2.100	255.255.255.0	192.168.2.1	00:50:C2:89:61:41
Program settings	Load			
Program listing	Load			
IP-Output	Name	Destination IP	Destination Port	Status of connection
Stream channel1 On	NOVA SPORT	192.168.30.170	6085	connected Extended
Stream channel2 On	Animal Planet	192.168.30.171	6085	connected Extended
Stream channel3 On	Discovery Chan	192.168.30.172	6085	connected Extended
Stream channel4 On	JimJam	192.168.30.173	6085	connected Extended
Stream channel5 On	Disney Channel	192.168.30.174	6085	connected Extended
Stream channel6 On	National Geogr	192.168.30.175	6085	connected Extended
Stream channel7 On	HBO Comedy	192.168.30.176	6085	connected Extended
Stream channel8 On	Hallmark	192.168.30.177	6085	connected Extended
Stream channel9 On	Hustler TV	192.168.30.178	6085	connected Extended
Stream channel10 On	Zone Reality	192.168.30.179	6085	connected Extended
Stream channel11 On	Extreme Sports	192.168.30.180	6085	connected Extended
Stream channel12 On	UPC_EPG	192.168.30.181	6085	connected Extended
Stream channel13 On	Guide	192.168.30.182	6085	connected Extended
Stream channel14 On	Games Portal	192.168.30.183	6085	connected Extended
Stream channel15 On	(MPTS) TS.1	192.168.30.184	6085	connected Extended
Stream channel16 On	(MPTS) TS.2	192.168.30.185	6085	connected Extended
ASI-Output	Data source Stream channel 4			
Operating status	On [On]			
SNMP-Trap message	locked			
Factory settings	Load			
Extended settings Software overview Status				
Update Transmit				
<<< Back >>>				

Name of device, item number, address in head end

Description

Name of programme (max. 30 characters)

Input channel

SAT-IF

adjustment range: 950 ... 2150 MHz

Symbol rate

adjustment range: 1000 ... 45000 kSps

Standard

selection: Auto, DVB-S, DVB-S2

Status

displays whether **SYNC**hronization or **noSYNC**hronization with input and the format of transmission

Common Interface

TS-Source

slot 1 always input channel 1 assigned, slot 2 - selection: input channel 1 or 2

CA-Module

displays the type of the CA module per slot

CA-Menu

see menu 2

Multidecryption

see menu 3

IP-Network

Ethernet

input of IP address, subnet mask and Gateway, display of the MAC address

Program settings

Program listing

see menu 1

IP-Output

per stream channel (1 ... 16) :

- selection: On/ Off (of the channel)

- displays the name

- input of the destination IP

- input of the destination port

- displays the status of connection

- routing to the menu 7 (extended set tings)

ASI-Output

Data source

selection: stream channel 1... 16, TS1,TS2

Operating status

selection: On, Off, Reset

SNMP-Trap message

On/Off, if SNMP option in HCB x00 is enabled, otherwise "locked" is displayed

Factory settings

see menu 9

Routing to the appropriate adjustment menu:

Extended settings

see menu 8

Software overview

see menu 11

Status

see menu 10

* For further details see the HCB manual

8.2 Loading the programme list (menu 1)

TWIN SAT-Streamer, SSI 108 (9740.01 / 00), Address 00 / 00																	
Input channel 1		Streamt channel															
Service ID	Program name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
225	PHILIPS DOWNLO	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
226	PHILIPS DOWNLO	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
227	NAGRA DOWNLOAD	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
228	HUMAX DOWNLOAD	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
20301	NOVA SPORT	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
20302	Animal Planet	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
20303	Discovery Chan	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
20304	JimJam	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
20305	Disney Channel	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
20306	National Geogr	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
20307	HBO Comedy	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
20308	Hallmark	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
20309	Hustler TV	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
20310	Zone Reality	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
20311	Extreme Sports	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
20499	UPC_EPG	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
20500	Guide	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
20498	Games Portal	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
20497	Game 1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
20496	Game 2	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
20495	Game 3	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
20494	UPC Direct Rad	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
*****	(MPTS) TS:1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Input channel 2		Stream channel															
Service ID	Program name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
225	PHILIPS DOWNLO	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
226	PHILIPS DOWNLO	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
227	NAGRA DOWNLOAD	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
228	HUMAX DOWNLOAD	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
20301	NOVA SPORT	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
20302	Animal Planet	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
20303	Discovery Chan	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
20304	JimJam	☐	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
20305	Disney Channel	☐	☐	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
20306	National Geogr	☐	☐	☐	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
20307	HBO Comedy	☐	☐	☐	☐	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
20308	Hallmark	☐	☐	☐	☐	☐	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐
20309	Hustler TV	☐	☐	☐	☐	☐	☐	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐
20310	Zone Reality	☐	☐	☐	☐	☐	☐	☐	☐	☐	☒	☐	☐	☐	☐	☐	☐
20311	Extreme Sports	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☒	☐	☐	☐	☐	☐
20499	UPC_EPG	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☒	☐	☐	☐	☐
20500	Guide	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☒	☐	☐	☐
20498	Games Portal	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☒	☐	☐
20497	Game 1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
20496	Game 2	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
20495	Game 3	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
20494	UPC Direct Rad	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
*****	(MPTS) TS:2	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☒	☒
Disable program		Stream channel															
Service ID	Program name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
0	empty	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

This menu contains a list of all services available in the data stream. In the matrix there is a selection of the services per stream channel. Settings are adopted or changed by clicking the "Transmit" button.

8.3 CA menu (menu 2)

TWIN SAT-Streamer, SSI 108
 (9740.01 / 00), Address 00 / 00

AlphaCrypt 3.19 (c) Mascom GmbH

Module Hauptmenu

1/ Information

2/ Smartkarte

3/ Nachrichten

4/ Jugendschutz

5/ Einstellungen

6/ Zurück

Bitte wählen Sie mit OK

Select Menu 1-6:

Name of device, item number, address in head end

On these pages all menus implemented in the CA module are offered. The available menus are selected individually or are invoked one-by-one to do necessary settings or to get all informations about the CA module.

8.4 Multi-decryption menu (menu 3)

TWIN SAT-Streamer, SSI 108
 (9740.01 / 00), Address 00 / 00

Program name	Decoding settings	Status
NOVA SPORT dec.PID's:2	- with MPEG1/2 audio language:1	stored
Animal Planet dec.PID's:4	Service completely	stored
Discovery Chan dec.PID's:2	- with MPEG1/2 audio language:2 - without subtitling streams	stored
National Geogr dec.PID's:2	- with MPEG1/2 audio language:1 - without subtitling streams - without VBI data	stored

dec.PID's total:10

☐ Clear entries

When calling this menu the selection of the services of the adjusted transponder, which were selected for decryption and whose decryption was successfully, appears. Indicated are the programme name with the number of the decoded PID's, the decryption settings and the status of the programme. "Stored" means, that the service was successfully decrypted and saved in the CA-service-list. Using the check box "Clear entries" and the "Transmit / Back" button the entire selection will be deleted and no services are decrypted afterwards. By using the "Selection" button and the appropriate selection of the services in the multi-decryption selection menu (menu 4) the list of the services to decrypt can be changed.

Using the "Testing selection" button calls the test menu (menu 5), in which the decryption state of all programmes in the CA-service-list will be tested again and possible occurring errors will be listed.

8.5 Multi-decryption selection (menu 4)

TWIN SAT-Streamer, SSI 108 (9740.01 / 00), Address 00 / 00								
Program selection			Decoding settings					
Selection	Program name	Status	private Streams	other Audio Streams	MPEG1/2 Audio Streams	Subtitling Streams	VBI Data Streams	PID-Drop list
☐	PHILIPS DOWNLOAD 1.1	free	☐	☐	no ▾	no ▾	☐	
☐	PHILIPS DOWNLOAD 1.2	free	☐	☐	no ▾	no ▾	☐	
☐	NAGRA DOWNLOAD	free	☐	☐	no ▾	no ▾	☐	
☐	HUMAX DOWNLOAD	free	☐	☐	no ▾	no ▾	☐	
☒	NOVA SPORT	coded	☒	☒	eng ▾	all ▾	☒	
☒	Animal Planet	coded	☒	☒	all ▾	all ▾	☒	
☒	Discovery Channel	coded	☒	☒	eng ▾	no ▾	☒	
☐	JimJam	coded	☐	☐	no ▾	no ▾	☐	
☐	Disney Channel	coded	☐	☐	no ▾	no ▾	☐	
☒	National Geographic	coded	☒	☒	eng ▾	no ▾	☐	
☐	HBO Comedy	coded	☐	☐	no ▾	no ▾	☐	
☐	Hallmark	coded	☐	☐	no ▾	no ▾	☐	
☐	Hustler TV	coded	☐	☐	no ▾	no ▾	☐	
☐	Zone Reality	coded	☐	☐	no ▾	no ▾	☐	
☐	Extreme Sports	coded	☐	☐	no ▾	no ▾	☐	
☐	UPC_EPG	free	☐	☐	no ▾	no ▾	☐	
☐	Guide	free	☐	☐	no ▾	no ▾	☐	
☐	Games Portal	coded	☐	☐	no ▾	no ▾	☐	
☐	Game 1	coded	☐	☐	no ▾	no ▾	☐	
☐	Game 2	coded	☐	☐	no ▾	no ▾	☐	
☐	Game 3	coded	☐	☐	no ▾	no ▾	☐	
☐	UPC Direct Radio	coded	☐	☐	no ▾	no ▾	☐	
☐ Reset CA-Modul								
Simultaneous decoding of several programs depends on CA-Module and Smartcard!								
							Update	Transmit
								Back

In this menu all services of the adjusted transponder and their CA status are listed. The services are selectable for decryption. For each of this selected services one can determine, what streams or PID's are to be decrypted. That's important because the maximum number of the decryptable PID's is limited and this limit has a different size per CA module.

In the selection boxes "MPEG 1/ 2 Audio Streams" respective "Subtitling Streams" all, no or individual streams are selectable. If one wants to select more than one stream, but not all, the selection field "all" in the box is to be selected and in the column "PID-Drop list" all PID's have to be entered, that shall not be decrypted.*

In the column "PID-Drop list" all PID's are listed, that shall not be decrypted. The PID's can be given in decimal or hexadecimal format and have to be separated by a semicolon. The maximum number of PID's is 10.**

Individual CA modules have to be initialized once again before the CA services will be sent to the module. To do so the option "Reset CA-Modul" can be activated.

* "Other Audio Streams" includes all AC3-, DTS- and AAC-Streams. „Private Streams" selects all streams which are not captured by the other selection fields.

** Particularly Pid's can be given here, which are active only at times and no authorisation for decryption is available for them.

8.6 Multi-decryption test (menu 5)

Check program: NOVA SPORT

First all services, which are saved in the CA-service-list, will be tested for the current decryption status.

TWIN SAT-Streamer, SSI 108 (9740.01 / 00), Address 00 / 00		
Program name	Decoding settings	Status
NOVA SPORT dec.PID's:2	- with MPEG1/2 audio language:1	OK Info
Animal Planet dec.PID's:4	Service completely	OK Info
Discovery Chan dec.PID's:2	- with MPEG1/2 audio language:2 - without subtitling streams	OK Info
National Geogr dec.PID's:2	- with MPEG1/2 audio language:1 - without subtitling streams - without VBI data	OK Info
dec.PID's total:10		
☐ Clear entries		
Selection Testing selection Transmit / Back		

After the end of the test the multi-decryption menu (menu 3) appears, where in the "Status"-column the test result of the respective service is stated by using the "Info" button, the relevant information page of the test (menu 6) is displayed. By clicking of the "Transmit / Back" button all settings are transmitted. The "Selection" button routes back to menu 4 to correct input values, e.g. too much PID's were selected.

8.7 Multi-decryption test information (menu 6)

TWIN SAT-Streamer, SSI 108 (9740.01 / 00), Address 00 / 00		
Service Information:		
Service ID	CA Information	Test result
20301	coded with CAM support	Test OK
Information about elementary streams:		
PID / Typ	CA Information	Test result
101 / Video	coded with CAM support	Test OK
112 / Audio	coded with CAM support	Test OK
Back		

Name of device, item number, address in head end

On this page informations about the test result of the selected service are displayed. First the final result of the test with service ID and CA information is listed, than for each requested PID the type, the CA information and the test result.

8.8 Extended settings of the stream channels 1 ... 16 (menu 7)

TWIN SAT-Streamer, SSI 108 (9740.01 / 00), Address 00 / 00	
Stream channel 1	
Operating status	On ▼
Destination IP	192.168.30.170
Destination Port	6085
configuration	
Transmit protocol	RTP ▼
FEC-Mode L	5 ▼
FEC-Mode D	7 ▼
Set stream data rate to	User defined ▼
User defined data rate	47800 Kbps
Change TS-Identification	On ▼
TS-ID	1
Network-ID	100
EIT-Mode	Present/following ▼
☐ Use configuration for all stream channels (without TS-ID)	
Service settings	
TS-Source	Input channel 2 ▼
Streaming mode	SPTS(single program) ▼
Service ID	20301
Name	NOVA SPORT
Update Transmit	
Stream channel:	
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	
Back	

Name of device, item number, address in head end

Stream channel x displays the channel, that will be adjusted
 Operating status selection: On/ Off
 Destination IP input of the destination IP number
 Destination Port input of the destination port
 In selecting the destination port please note a distance of 5, if RTP was selected as transfer protocol.

configuration
 Transmit protocol selection: RTP, UDP
 FEC-Mode L selection: Off, 1 ... 20
 FEC-Mode D selection: Off, 4 ... 20
 Set stream data rate to selection: User defined, TS-Data rate, Service data rate

User defined data rate input of the data rate in kbps (only if "Set stream data rate to user defined")

Change TS-Identification selection: On/ Off
 TS-ID input of the TS-ID**
 Network-ID input of the network ID**
 EIT-Mode selection: EIT completely, present/ following

Use configuration for all stream channels if box is clicked, all configuration settings are adopted for the other 15 stream channels

Service settings
 TS-Source selection: input channel 1 or 2
 Streaming Mode selection: SPTS (one programme), MPTS (all programmes)
 Service ID adjustment range: 0..65535***
 Name service name (max. 30 characters)

Stream channel routing to the next stream channel, that should be adjusted

* only selectable if "Change TS-Identification Off"
 ** input only if "Change TS-Identification On" is selected
 *** input only if "Streaming mode SPTS" is selected

The manual configuration of service settings is necessary only if the requested service is not available in the programme list. Normally all settings of the service are adopted when the service is selected in the list.
 The EIT present/ following will be equipped with TS ID and network ID and is outputting unchangedly except the necessary CRC32 correction.

8.9 Extended settings (menu 8)

TWIN SAT-Streamer, SSI 108 (9740.01 / 00), Address 00 / 00	
CA-Configuration	
SDT/PMT-Processing	Slot 1 On ▼ Slot 2 On ▼
Mode CA-PMT-Update	CA-PMT-Entry ▼ CA-PMT-Entry ▼
Update Transmit	
Back	

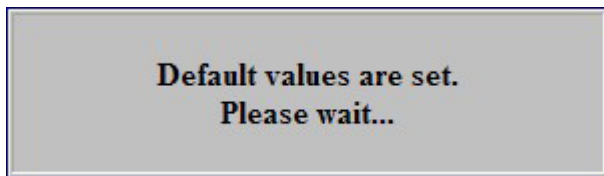
Name of device, item number, address in head end

CA-Configuration datas per slot
 SDT/PMT-Proc. selection: On/ Off
 Mode
 CA-PMT-Update selection: CA-PMT-Entry, CA-PMT-Listing

8.10 Factory settings (menu 9)



When this menu item is requested, at first a security query whether it really set all parameters to the factory default settings pops up.



Affirming the query, all settings stored in the EEPROM will be deleted and replaced by the default settings. The module will go back to these default values. In particular all network settings (IP address, subnet mask, gateway and destination IP per channel) are set on address 0.0.0.0 . Once the setting process is over, there will be an automatic return to the main menu. It takes about one minute.

8.11 Status of the device (menu 10)

TWIN SAT-Streamer, SSI 108 (9740.01 / 00), Address 00 / 00			
Input channel	1	2	
Status	SYNC (DVB-S2)	SYNC (DVB-S)	
Set values	Sat ZF:1315 Symbolrate:27500	Sat ZF:1704 Symbolrate:27500	MHz kSps
RF-Input level	45	48	dBμV
BER/PER	0 E-6	< 1 E-6	
Common Interface	Slot 1	Slot 2	
Decoder status	No messages available	No messages available	
IP-Output	Status	Data rate	
Stream channel 1	To be running	37300 Kbps	
Stream channel 2	To be running	37400 Kbps	
Stream channel 3	To be running	37500 Kbps	
Stream channel 4	To be running	37600 Kbps	
Stream channel 5	To be running	37700 Kbps	
Stream channel 6	To be running	37800 Kbps	
Stream channel 7	To be running	37900 Kbps	
Stream channel 8	To be running	38000 Kbps	
Stream channel 9	To be running	38100 Kbps	
Stream channel 10	To be running	38200 Kbps	
Stream channel 11	To be running	38300 Kbps	
Stream channel 12	To be running	38400 Kbps	
Stream channel 13	To be running	38500 Kbps	
Stream channel 14	To be running	38600 Kbps	
Stream channel 15	To be running	38700 Kbps	
Stream channel 16	To be running	38800 Kbps	
Information			
System status	No messages available		
Temperature	100 °F		
Device number	0000000		
Device index	00		
			Update Back

Name of device, item number, address in head end

Input channel	displays datas for channel 1 and 2
Status	displays whether SYNCH ronization or noSYNCH ronization with input and the format of transmission
Set values	displays adjusted SAT IF and symbol rate
RF-Input level	displays in dBμV
BER/ PER	bit error rate (DVB-S)/ packet error rate (DVB-S2)

Common Interface	displays per slot
Decoder status	displays available messages

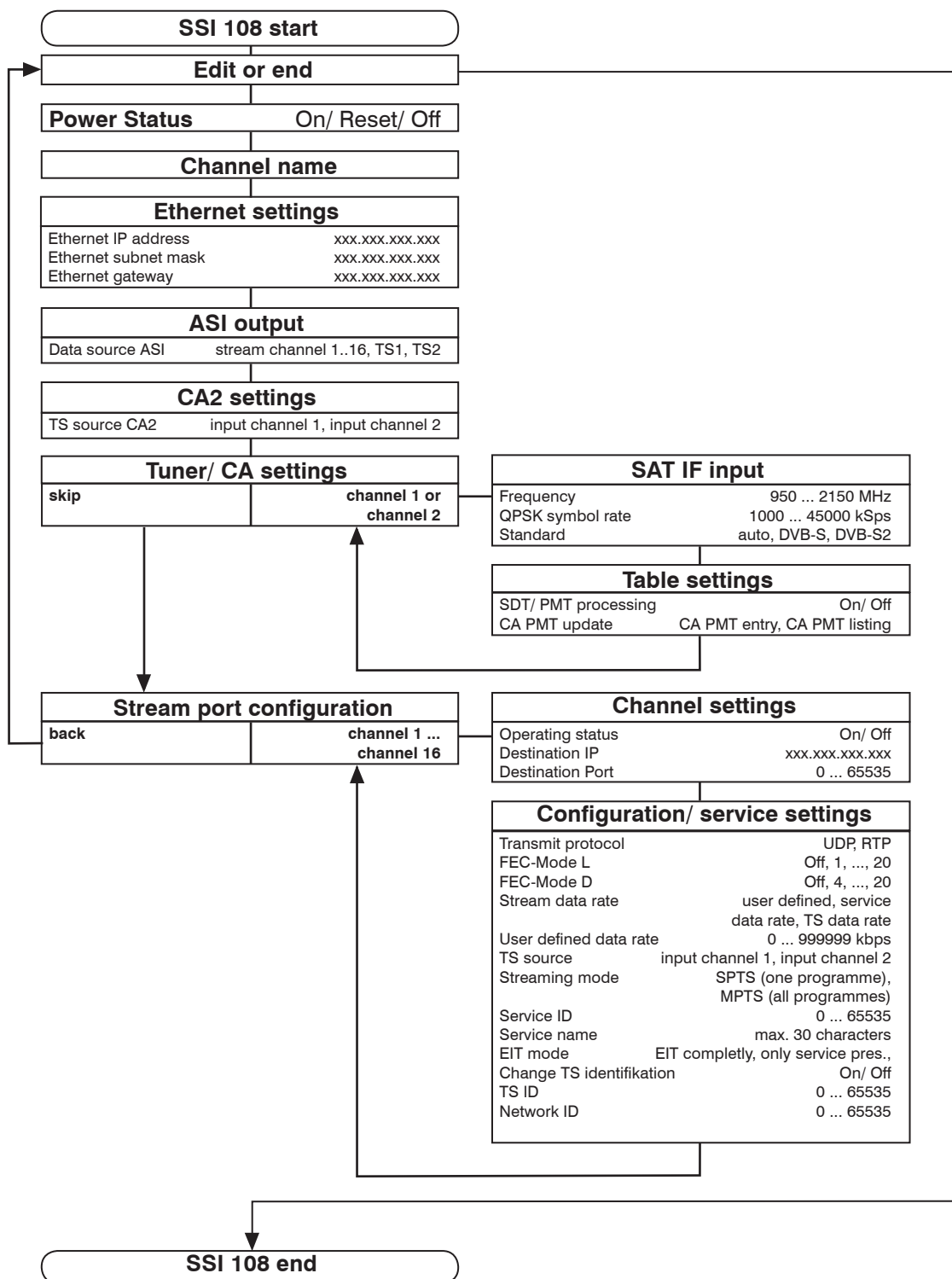
IP-Output	displays status and data rate per stream channel
------------------	--

Information	
System status	displays available messages
Temperature	temperature of terminals board
Device number	display of the device number
Device index	display of the device index (hardware)

8.12 Software overview (menu 11)

TWIN SAT-Streamer, SSI 108 (9740.01 / 00), Address 00 / 00		Name of device, item number, address in head end
Version		Software versions
AP-Controller	9740.01-81.01 Steuercontroller Anschluß-LP V1.01 13.11.2009 JR	Displays the software versions for the controllers as follows: - Controller of terminals board
DVB-S/S2 Frontend1	9619.05-88.02 S2-NIM-Controller H2V1.10 28.07.2009 SS	- Controller DVB-S/ S2 frontend 1
DVB-S/S2 Frontend2	9619.05-88.02 S2-NIM-Controller H2V1.10 28.07.2009 SS	- Controller DVB-S/ S2 frontend 2
CA Bootcontroller	9730.01-88.01 FPGA Boot Controller(2) V1.01 11.11.2009 JR	- CA-Bootcontroller
CA FPGA-Image	9740.01-87.02 FPGA CA-Controller V0.02 04.09.2009 WE	- FPGA CA-Controller
CA NIOS-Application	9740.01-90.03 TS-CA-Manager V1.00b 25.09.09 SS	- TS-CA-Manager
IP Bootcontroller	9730.01-88.01 FPGA Boot Controller(2) V1.01 11.11.2009 JR	- IP-Bootcontroller
IP FPGA-Image	9740.01-87.01 Test V1.00 23.09.2009 JR	- FPGA IP-Controller
IP NIOS-Application CPU1	9740.01-90.01 Control CPU V1.00 28.10.2009 JR	- IP-CPU
IP NIOS-Application CPU2	9740.01-90.02 TS-CPU V1.00 28.10.2009 JR	- TS-CPU
Back		

9. Manual menu control at the Headend Controller (HCB x00)

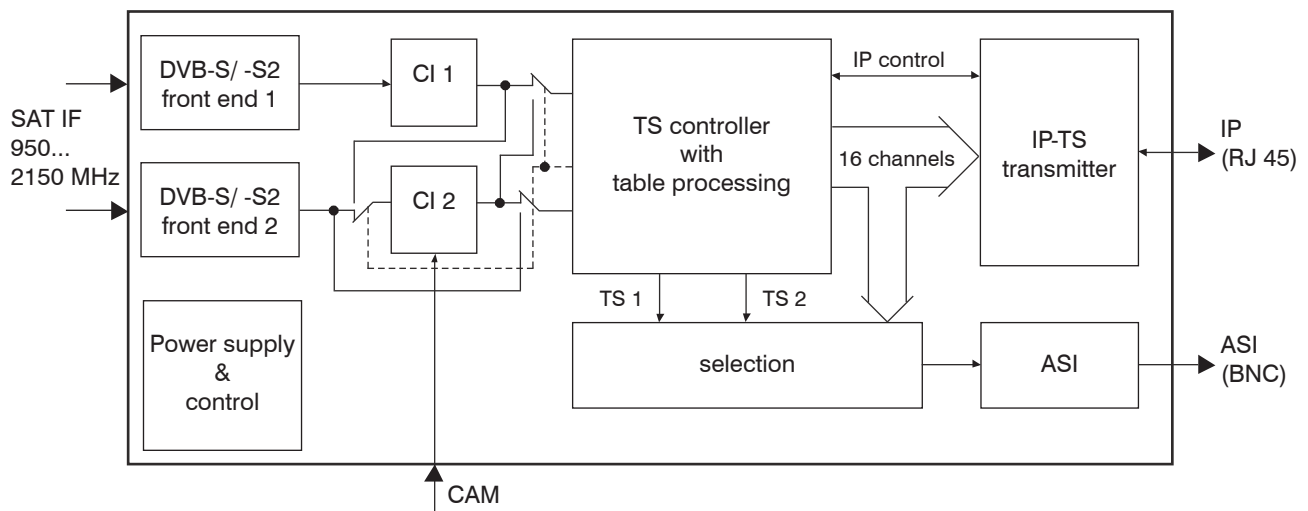


10. Trap messages

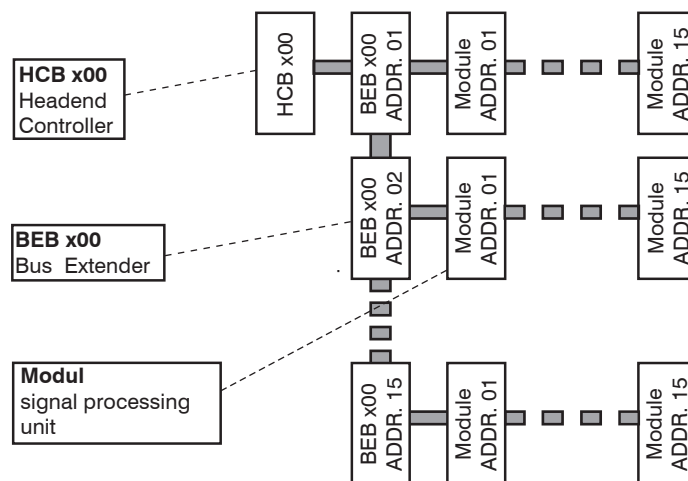
Item	Message	Message Type	Explanation
01	Input sync	INFORMATION	input synchronized
02	Input not sync	WARNING	input not synchronized
03	IIC error	CRITICAL	IIC bus or hardware error
04	System reset	WARNING	reset by internal error
05	Internal controller reset	WARNING	error when accessing internal controller

Item	Message	Message Type	Explanation
06	Power fail	CRITICAL	power supply error
07	Communication CA-Controller lost	WARNING	error when accessing CA controller
08	Communication IP-Controller lost	WARNING	error when accessing IP controller
09	IP-Streamer fail	WARNING	error in IP streamer
10	IP-Streamer ok	INFORMATION	IP streamer working properly
11	Decoding of service ... fail	WARNING	error on descrambling of service...
12	Decoding of service ... ok	INFORMATION	descrambling of service ... ok

11. Block diagram

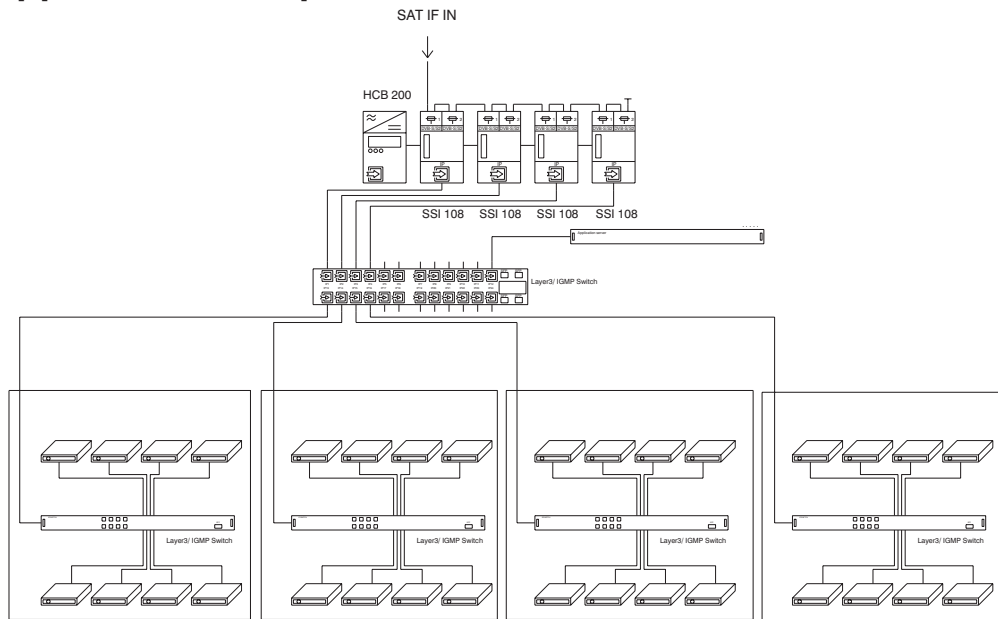


12. Head end bus structure



The number of the possible module connections (00 ... 15) to a BEB x00 depends on the total power consumption of this line!

13. Application example



14. Technical data

SAT IF input

Frequency range	950 ... 2150 MHz
Frequency step	1 MHz
AFC range	± 3 MHz (SR < 10 MSps) ± 5 MHz (SR ≥ 10 MSps)
AGC level range	53 ... 93 dBμV
Connector	F socket
Impedance	75 Ω

DVB-S demodulator (QPSK)

Symbol rate	1 ... 45 MSps
Code rate	1/2, 2/3, 3/4, 5/6, 7/8
Roll-off	35 %
Signal processing	EN 300 421 (DVB-S) [1]

DVB-S2 demodulator (QPSK, 8PSK)

Symbol rate	QPSK	5 ... 36 MSps
	8PSK	5 ... 30 MSps
Code rate	QPSK	1/4, 1/3, 2/5, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10
	8PSK	3/5, 2/3, 3/4, 5/6, 8/9, 9/10
Roll-off		35 %
Signal processing		EN 302 307 (DVB-S2) [2]

ASI output

Data rate	270 Mbps
Polarity	normal
Mode	burst
TS data rate	according symbol rate and coding
TS mode	188 Bytes
Output voltage	800 mV _{ss} ± 10 %
Connector	BNC socket
Impedance	75 Ω
Signal processing	EN 50083-9 [3]

Decryption interface

Common Interface	PCMCIA-Slot according EN 50221 [4]
Operating voltage	5 V
Multi-Service decryption	24 services max.

IP output

Network connection (LAN/WAN)	Ethernet, 10/100/1000 Base-T
Plug connection	RJ 45
Protocols	UDP, RTP, ARP
Additional error correction	pro-MPEG Code of practise 3 rev. 2
Encapsulation	according ETSI TS 102034 [5]

Operating parameters

Voltage/ current (w/o CAM)	12 V (± 0.2 V)/ 1 A
Residual ripple of supply voltage	≤ 10 mV _{ss}

Environmental conditions

Temperature range	-10 ... +55 °C
Temperature range for data keeping	5 ... 45 °C
Relative humidity	≤ 80 % (non condensing)
Method of mounting	vertical
Location of mounting	splash-proof and drip-proof

Miscellaneous

Dimensions (l x w x h)	
without 19" - adapter	50 x 276 x 148 mm
with 19" - adapter	50 x 301 x 148 mm
Weight	1.350 g

Delivery content

1 x bus connector
2 x F connecting cable 140 mm

15. Glossary

8PSK	8 Phase Shift Keying
AAC	Advanced Audio Coding
AC3	Adaptive Transform Coder 3 (multi channel audio system of company Dolby)
AP	Anschlussplatte (front terminal board)
ARP	Address Resolution Protocol
ASI	Asynchronous Serial Interface
BER	Bit Error Rate
CA	Conditional Access
CAM	Conditional Access Module
CI	Common Interface
CCIR	Comité Consultatif International des Radiocommunications
CATV	Cable Television
DTS	Digital Theater Systems (multi channel audio system of company with the same name)
DVB	Digital Video Broadcasting (-C Cable, -S Satellite, -S2 Satellite 2, -T Terrestrial)
EIT	Event Information Table
FEC	Forward Error Correction
FPGA	Field Programmable Gate Array
HTML	Hypertext Markup Language
HTTP	Hypertext Transfer Protocol
IANA	Internet Assigned Numbers Authority
ID	Identifier
IIC	Inter-Integrated Circuit (I ² C-Bus, data bus within device)
IP	Internet Protocol
LED	Light Emitting Diode
MC	Microcontroller
MIB	Management Information Base
MPEG	Moving Picture Experts Group
MPTS	Multi Program Transport Stream
QPSK	Quadrature Phase Shift Keying
PAT	Program Association Table
PCR	Program Clock Reference
PER	Packet Error Rate
PID	Packet Identifier
PMT	Program Map Table
PLL	Phase-locked loop
RTP	Realtime Transport Protocol
SDT	Service Description Table
SMATV	Satellite Master Antenna Television
SNMP	Simple Network Management Protocol
SPI	Serial Peripheral Interface
SPTS	Single Program Transport Stream
TS	Transport Stream
TV	Television
UDP	User Datagram Protocol

16. Bibliography

- [1] EN 300 421: Digital Video Broadcasting (DVB): Framing structure, channel coding and modulation for 11/12 GHz satellite services
- [2] EN 302 307: Digital Video Broadcasting (DVB): Second generation framing structure, channel coding and modulation systems for Broadcasting, Interactive Services, News Gathering and other broadband satellite applications
- [3] EN 50083-9: Cabled distribution systems for television, sound and interactive multimedia signals, part 9: Interfaces for CATV/SMATV head ends and similar professional equipment for DVB/MPEG-2 transport streams
- [4] EN 50221: Common interface specification for conditional access and other digital video broadcasting decoder applications; German version EN 50221:1997 + Corrigendum:2000
- [5] ETSI TS 102034: Digital Video Broadcasting (DVB); Transport of MPEG-2 TS Based DVB Services over IP Based Networks, Ver. 1.4.1, 2009-08-04
- [6] EN 60728-11: Cable networks for television signals, sound signals and interactive services Part 11: Safety (IEC 60728-11:2005); German version EN 60728-11:2005
- [7] RFC 1157 Request for Comments (RFC): RFC Database URL: <http://www.rfc-editor.org/rfc.html>

17. Document history

Version	Date	Modification	Author
1.00	03.11.2009	Basic document	Häußer
1.01	01.02.2010	Revision	Häußer

Options available upon request! Subjects to changes due to technical progress.

Declaration of Conformity

The Manufacturer

BLANKOM Antennentechnik GmbH · Hermann-Petersilge-Str. 1 · 07422 Bad Blankenburg · Germany

herewith declares the conformity of the product

Product name: TWIN SAT-Streamer

Type: SSI 108

Product number: 9740.01

according to the following regulations

EN 50083-2

EN 60728-11 (as far as relevant)

and additional device-specific regulations, enclosed above, which this product is subjected to.

Date: 03.11.2009

Signature:



(Managing Director)